AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Original) A high-speed, broadband, wireline modem including an adaptive equalizer having both a training mode and a decision-directed, non-training mode, the adaptive equalizer comprising:

at least one of: a forward path coupled to receive the signal samples, the forward path including a forward filter and a decision element, and a feedback path coupled between an output of the decision element and an input of the decision element, the feedback path including a feedback filter; and

means for adapting the one of said forward filter and said feedback filter based on a least squares error criterion, as distinguished from a least mean squares error criterion.

2. (Original) The apparatus of Claim 1, further comprising a memory for storing received signal samples.

3. (Original) The apparatus of Claim 1, comprising both said feedforward path and said feedback path.

4. (Original) The method of Claim 1, wherein the means for adapting operates during decision-directed mode.

5. (Original) The method of Claim 1, wherein the combined length of the forward filter and the feedback filter is moderate relative to adaptation processing power.

6. (Original) The method of Claim 1, wherein adaptation is performed using fixed-point arithmetic.

7. (Original) The method of Claim 1, wherein said means for adapting performs substantially the following computation:

$$e_p = e(1 - K^{T_{fast}} X_{fast}).$$

8. (Original) The method of Claim 1, wherein said means for adapting performs substantially the following computations:

$$F_{fast} = \lambda_i F_{fast},$$

$$c_n = F_{fast} \frac{e_p}{1 + e^T F_{fast} e_p},$$

$$F_{fast} = F_{fast} - c_n e^T F_{fast},$$

$$b_n = K_{fast} + A_{fast} c_n.$$

9. (Original) The method of Claim 1, wherein said means for adapting performs substantially the following computations:

$$K_{fast} = (m - (D_{fast}\mu))/(1 - \eta^T \mu),$$

$$D_{fast} = D_{fast} - K_{fast}\eta^T.$$

10. (Original) The method of Claim 1, wherein a routine for updating said one of said forward filter and said feedback filter performs no more than 22N multiplies, where N is the number of filter taps, and wherein no distinct stabilization quantity is computed.

Claims 11-14 (Cancelled).